Introduction to Unified Architecture Framework® (UAF®)

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Speaker

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Expertise areas

✓ Model based enterprise architecture solutions
✓ Business modeling solutions
✓ IT architecture
Q&A: Type your questions here

[Enter a question for staff]
Why Architecture Framework?

It leads to decisions:

- how to structure the model?
- what views to build?
- which artifacts to deliver?
- and in what sequence?

You always end-up using an architecture framework whether you want one or not, or whether you intend to or not.
UPDM 2.x

UPDM is neither a modeling methodology nor a framework!

UPDM is always used in combination with AF

- UML profile based
- IDEAS based
- MODAF v1.2.004
- NAF v3.1
- DoDAF 2.02
EA Frameworks

- MODAF v1.2.004
- NAF v3.x
- MODAF Documentation
- Other improvements/fixes
- NAF v4.0
- UAF v1.0?
- MODEM v1.1
- DoDAF Alignment
- DNDAF Alignment
- DoDAF 2.x
- DNDAF
Adoption

Defense:

- Used by DOD and its contractors on various MBSE and IT projects
- Being picked up outside of the US
  - Used in Europe, Australia, Asia, S. America

Industry and Government (external to Defense):

- European research projects (DANSE, COMPASS)
- Starting to be looked at by US and European industrial companies familiar with MBSE
- NASA, CACI, etc.
- Starting to be looked at for modeling business processes, information systems architectures

Industry needs:

- Demilitarization / Industrialization
- Wider scope (SoS, Human Views etc.)
Why UAF?

- Proliferation of frameworks that it was being asked to support
- Need to support industry and federal usage as well as military
- Ability to support other frameworks
- Need to support DMM that non-UML tool vendors could support
- Need to support a standard profile that can be used to implement the UAF in UML/SysML tool
UPDM 3.0 Requirements

Mandatory requirements (excerpt):

- Provide Domain Metamodel derived from MODEM and DM2
- An Architecture Framework Profile Using SysML
- Supports BPMN 2.0
- Use of SysML Requirements Elements and Diagrams
- Use of SysML Parametrics Elements and Diagrams Mapped to Measurements
- Traceability Matrix to Supported Frameworks

Non mandatory features (excerpt):

- UML Profile for NIEM
- Information Exchange Packaging Policy Vocabulary (IEPPV)
- Viewpoints in Support of SoS Life Cycle Processes and Analyses
- Support for Additional Viewpoints beyond those defined in DoDAF, MODAF/MODEM, NAF, and the Security Viewpoint from DNDAF.
- Human Systems Integration (HSI)
UAF 1.0

UML profile based

MODAF v1.2.004

MODEM

NAF v4.0

DoDAF 2.02

DMM

IDEAS based

DNDAF

Other influences...

3.0
UAF Grid Representation

- Took inspiration from NAF 4, Zachman AF
- Genericize UPDM
  - Still the same underlying metamodel and view constructs that support
    - DoDAF
    - MODAF
    - NAF
  - Different presentation layers
- Easy to map to other frameworks
- Easy to extend
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Benefits

- **UAF goes beyond DoDAF/MODAF/NAF**
- Actual Resources are *instance models* of the architecture
- **Security Domain** included for Information assurance
- **Requirements** can be defined and related to all parts of the architecture
- Allows *mapping to an MBSE approach* based on SysML
- **Cross cutting concerns**
- Provides a *Standard framework* for defining many different aspects of complex architectures
Examples: Capabilities
Operational Processes
Resources Connectivity
Personnel Structure
Security Structure
Project/Strategic Roadmaps
Strategic Traceability
Behavioral Simulation
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**Summary & Overview Sm-Ov**

**Requirements Rq**
Summary

• **Communication.** UAF has the potential to improve communication, collaboration and interoperability between
  ▪ Nations
  ▪ Government and Industry
  ▪ Industry to Industry

• **UAF goes beyond** DoDAF/MODAF/NAF

• **Fit for Purpose.** Grid approach allows different industries to reuse, extend or create new views appropriate to them.

• **Cyber Security.** Improve UAF to fully support cyber threat and risk analysis.
Roadmap

• Voted for acceptance at June 2016 OMG technical meeting

• Beta specification consists of 4 major parts
  ▪ UAFP, Modeling Language
  ▪ UAF, Domain Metamodel and Architecture Framework
  ▪ Traceability to donor frameworks and metamodels
  ▪ Sample problem based on Search and Rescue

• Finalization Task Force expected to complete at June 2017
Questions and Answers

Thank You!